

***Remarks***

By the foregoing amendments, claim 128 has been cancelled and claims 65-80, 85-100 and 105-120 are sought to be amended. Support for the amendments to the claims can be found throughout the present specification, specifically throughout pages 4-5. Upon entry of the foregoing amendments, claims 65-127 and 129-139 are pending in the application, with claims 65, 85 and 105 being the independent claims.

***I. Office Communications of January 31, 2006 and May 8, 2006***

The Office Communication dated January 31, 2006 stated that the reply submitted by Applicant on October 14, 2005 was not compliant because of an error in the listing of claims. The Office Communication dated May 8, 2006 stated that Applicant's reply filed February 28, 2006 [sic] was incomplete because it did not address the reasons for rejection in the Office Action dated December 12, 2005. The present reply contains a full listing of all the claims in the application and their status (and therefore is in compliance with the Office Communication dated January 31, 2006) and responds to all of the reasons for rejection in the Office Action dated December 12, 2005 (and therefore is in compliance with the Office Communication dated May 8, 2006). Applicants respectfully submit that this reply is fully responsive to all of the pending issues in the case and respectfully request its entry and consideration.

***II. 35 U.S.C. § 112, first paragraph***

Claims 65-139 stand rejected under 35 U.S.C. § 112, first paragraph, for failing to comply with the written description requirement. Specifically, Examiner asserts that Applicants have failed to specifically point out descriptive support for newly added claims 65-139.

Claim 65 is directed to a nucleic acid ladder comprising a plurality of nucleic acid fragments that exhibit “substantially equal intensity” when separated and stained by gel electrophoresis and wherein the size of at least two of the fragments is greater than 1 kb and at least two fragments are less than 1 kb. Support for “substantially equal intensity” can be found, *inter alia*, in the specification at page 4, lines 24-28, and on page 6, lines 5-9. Support for two fragments larger than 1 kb and for two fragments smaller than 1 kb is found, *inter alia*, in Example 2 and in Table 1 on page 20, where the preparation of a ladder with 7 fragments smaller than 1 kb and 12 fragments larger than 1 kb is described. Support for at least two fragments less than 1 kb can also be found, *inter alia*, on page 5, line 25, through page 6, line 9, of the specification as well as on page 4, lines 16-19, and page 4, line 28, through page 5, line 6. Applicant respectfully submits that one skilled in the art would therefore readily recognize that the specification provides sufficient written description for the nucleic acid ladders recited in present claim 65, and hence, at the time the application was filed, Applicant had full possession of the presently claimed invention.

Claims 66 – 73 are directed to nucleic acid ladders having a plurality of fragments wherein the large end of the size range is about 4kb, about 5kb, about 6kb, about 8kb or about 10kb and wherein the low end of the range is from about 100bp to about 500bp in

100bp increments. Support for the large end of the size range can be found, *inter alia*, on page 4, line 28, through page 5, line 6, of the specification and in Table 1 on page 20. Support for the small end of the size range can be found, *inter alia*, on page 4, line 28, through page 5, line 6; page 5, lines 25-30, and on page 9, lines 28-34, of the specification. Applicant respectfully submits that one skilled in the art would therefore readily recognize that the specification provides sufficient written description for the subject matter of claims 66-73, and hence, at the time the application was filed, Applicant had full possession of the presently claimed invention.

Claims 74 – 80 are directed to nucleic acid ladders wherein at least 3 to at least 5 of the fragments are larger than 1 kb and wherein at least 3 to at least 5 of the fragments are smaller than 1 kb. Support for these claims can be found, *inter alia*, at page 4, line 28, through page 5, line 6; in Example 2; and in Table 1, on page 20, where the preparation of a ladder with 7 fragments smaller than 1 kb and 12 fragments larger than 1 kb is described. Applicant respectfully submits that one skilled in the art would therefore readily recognize that the specification provides sufficient written description for the subject matter of claims 74-80, and hence, at the time the application was filed, Applicant had full possession of the presently claimed invention.

Claims 81 and 82 are directed to using the detectable label ethidium bromide or SYBR green. Support for these claims is found, *inter alia*, on page 15, lines 4-6, of the specification. Applicant respectfully submits that one skilled in the art would therefore readily recognize that the specification provides sufficient written description for the subject

matter of claims 81 and 82, and hence, at the time the application was filed, Applicant had full possession of the presently claimed invention.

Claims 83 and 84 are directed to ladders that further comprise a dye selected from the group consisting of bromophenol blue and xylene green. Support for these claims is found, *inter alia*, on page 16, lines 4-6, of the specification. Applicant respectfully submits that one skilled in the art would therefore readily recognize that the specification provides sufficient written description for the subject matter of claims 83 and 84, and hence, at the time the application was filed, Applicant had full possession of the presently claimed invention.

Claim 85 is directed to a nucleic acid ladder comprising a plurality of nucleic acid fragments having "substantially equal relative mass" and wherein the size of at least two of the fragments is greater than 1 kb and at least two fragments are less than 1 kb. Support for "substantially equal relative mass" can be found, *inter alia*, in the specification at page 4, lines 26-28, page 5, lines 16-17, and on page 8, lines 27-28. Support for two fragments greater than 1 kb is found, *inter alia*, in Example 2 and in Table 1, on page 20, where the preparation of a ladder with 7 fragments smaller than 1 kb and 12 fragments larger than 1 kb is described. Support for at least two fragments less than 1 kb can also be found, *inter alia*, on page 5, line 25, through page 6, line 9, of the specification as well as on page 4, lines 16-19, and page 4, line 28, through page 5, line 6. Applicant respectfully submits that one skilled in the art would therefore readily recognize that the specification provides sufficient written description for the nucleic acid ladders recited in present claim 85, and hence, at the time the application was filed, Applicant had full possession of the presently claimed invention.

Claims 86 – 93 are directed to nucleic acid ladders having a plurality of fragments wherein the large end of the size range is about 4kb, about 5kb, about 6kb, about 8kb or about 10kb and wherein the low end of the range is from about 100bp to about 500bp in 100bp increments. Support for the large end of the size range can be found, *inter alia*, on page 4, line 28, through page 5, line 6, of the specification and in Table 1, on page 20. Support for the small end of the size range can be found, *inter alia*, on page 4, line 28, through page 5, line 6; page 5, lines 25-30, and on page 9, lines 28-34 of the specification. Applicant respectfully submits that one skilled in the art would therefore readily recognize that the specification provides sufficient written description for the subject matter of claims 86-93, and hence, at the time the application was filed, Applicant had full possession of the presently claimed invention.

Claims 94 – 100 are directed to nucleic acid ladders wherein at least 3 to at least 5 of the fragments are larger than 1 kb and wherein at least 3 to at least 5 of the fragments are smaller than 1 kb. Support for these claims can be found, *inter alia*, in the examples and in Table 1 where the preparation of a ladder with 7 fragments smaller than 1 kb and 12 fragments larger than 1 kb is described. Applicant respectfully submits that one skilled in the art would therefore readily recognize that the specification provides sufficient written description for the subject matter of claims 94-100, and hence, at the time the application was filed, Applicant had full possession of the presently claimed invention.

Claims 101 and 102 are directed to using the detectable label ethidium bromide or SYBR green. Support for these claims is found, *inter alia*, on page 15, lines 4-6, of the specification. Applicant respectfully submits that one skilled in the art would therefore

readily recognize that the specification provides sufficient written description for the subject matter of claims 101 and 102, and hence, at the time the application was filed, Applicant had full possession of the presently claimed invention.

Claims 103 and 104 are directed to ladders that further comprise a dye selected from the group consisting of bromophenol blue and xylene green. Support for these claims is found, *inter alia*, on page 16, lines 5-6, of the specification. Applicant respectfully submits that one skilled in the art would therefore readily recognize that the specification provides sufficient written description for the subject matter of claims 103 and 104, and hence, at the time the application was filed, Applicant had full possession of the presently claimed invention.

Claim 105 is directed to a nucleic acid ladder comprising a plurality of nucleic acid fragments wherein the "copy number of said fragments is such that the mass of said fragments is substantially equivalent" and wherein the size of at least two of the fragments is greater than 1 kb and at least two fragments are less than 1 kb. Support for "copy number of said fragments is such that the mass of said fragments is substantially equivalent" can be found, *inter alia*, in the specification at page 5, lines 13-20, in the paragraph beginning on page 8, line 19, and in the last paragraph on page 9. Support for two fragments greater than 1 kb is found, *inter alia*, in the examples and in Table 1, on page 20, where the preparation of a ladder with 7 fragments smaller than 1 kb and 12 fragments larger than 1 kb is described. Support for at least two fragments less than 1 kb can also be found, *inter alia*, on page 5, line 25, through page 6, line 9, of the specification as well as on page 4, lines 16-19, and page 4, line 28, through page 5, line 6. Applicant respectfully submits that one skilled in

the art would therefore readily recognize that the specification provides sufficient written description for the nucleic acid ladders recited in present claim 105, and hence, at the time the application was filed, Applicant had full possession of the presently claimed invention.

Claims 106 – 113 are directed to nucleic acid ladders having a plurality of fragments wherein the large end of the size range is about 4kb, about 5kb, about 6kb, about 8kb or about 10kb and wherein the low end of the range is from about 100bp to about 500bp in 100bp increments. Support for the large end of the size range can be found, *inter alia*, on page 4, line 28, through page 5, line 6, of the specification and in Table 1, on page 20. Support for the small end of the size range can be found, *inter alia*, on page 4, line 28 through page 5, line 6; page 5, lines 25-30, and on page 9, lines 28-34, of the specification. Applicant respectfully submits that one skilled in the art would therefore readily recognize that the specification provides sufficient written description for the subject matter of claims 106-113, and hence, at the time the application was filed, Applicant had full possession of the presently claimed invention.

Claims 114 – 120 are directed to nucleic acid ladders wherein at least 3 to at least 5 of the fragments are larger than 1 kb and wherein at least 3 to at least 5 of the fragments are smaller than 1 kb. Support for these claims can be found, *inter alia*, in Example 2 and in Table 1, on page 20, where the preparation of a ladder with 7 fragments smaller than 1 kb and 12 fragments larger than 1 kb is described. Applicant respectfully submits that one skilled in the art would therefore readily recognize that the specification provides sufficient written description for the subject matter of claims 114-120, and hence, at the time the application was filed, Applicant had full possession of the presently claimed invention.

Claims 121 and 122 are directed to using the detectable label ethidium bromide or SYBR green. Support for these claims is found, *inter alia*, on page 15, line 4-6, of the specification. Applicant respectfully submits that one skilled in the art would therefore readily recognize that the specification provides sufficient written description for the subject matter of claims 121 and 122, and hence, at the time the application was filed, Applicant had full possession of the presently claimed invention.

Claims 123 and 124 are directed to ladders that further comprise a dye selected from the group consisting of bromophenol blue and xylene green. Support for these claims is found, *inter alia*, on page 16, lines 5-6, of the specification. Applicant respectfully submits that one skilled in the art would therefore readily recognize that the specification provides sufficient written description for the subject matter of claims 123 and 124, and hence, at the time the application was filed, Applicant had full possession of the presently claimed invention.

Claims 125 – 127 and 129 - 139 are directed to nucleic acid ladders where the copy number, relative mass or staining intensity of any one fragment is no more than 3, 2.5, 2 or 1.5 times greater than any other fragment or all fragments are about the same. Support for these claims is found, *inter alia*, at page 5, lines 13-24, which discloses that copy number may be adjusted so that the relative mass of each fragment is about the same and that fragments with the same mass stain with the same intensity. Support for the degree to which fragments may differ from each other is found, *inter alia*, on page 9, lines 8-15. Applicant respectfully submits that one skilled in the art would therefore readily recognize that the specification provides sufficient written description for the subject matter of claims 125-127



and 129-139, and hence, at the time the application was filed, Applicant had full possession of the presently claimed invention.

Based on the foregoing remarks, Applicant respectfully submits that one skilled in the art would therefore readily recognize that the specification provides sufficient written description for the subject matter presently claimed invention, and hence, at the time the application was filed, Applicant had full possession of the presently claimed invention. Applicant respectfully submits that pending claims 65-127 and 129-139 are fully supported by the specification as filed and as such do not represent new matter and are in full compliance with 35 U.S.C. § 112, first paragraph. Applicant respectfully requests reconsideration and withdrawal of the rejection.

***III. 35 U.S.C. § 112, second paragraph***

Claims 65-139 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for associating the term “molecular weight” with base pairs in the claims. By the foregoing amendments, the term “molecular weight” has been replaced with the term “size.” Support for these amendments can be found, *inter alia*, at page 4, line 19-22, and in the left column of Table 1 on page 20. Applicant respectfully submits that these amendments overcome the rejection and request that the rejection be reconsidered and withdrawn.

***Conclusion***

Applicant believes that a full and complete reply has been made to the outstanding Office Action and the outstanding Office Communications and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply are respectfully requested.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

A handwritten signature in black ink, appearing to read 'Jeffrey K. Mills', written in a cursive style.

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